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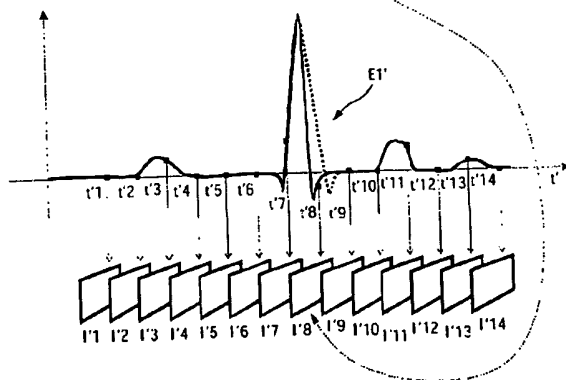
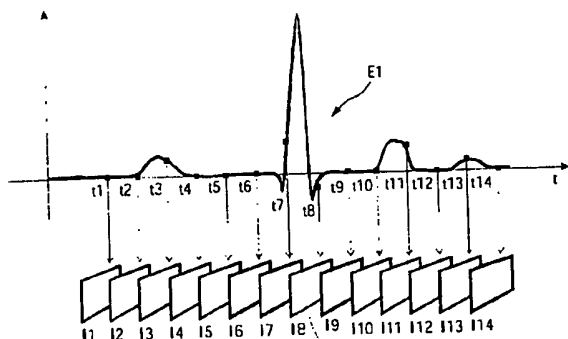
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[Continued on next page]

(54) Title: METHOD OF DETERMINING AN IMAGE FROM AN IMAGE SEQUENCE



(57) Abstract: The invention relates to a method of determining a corresponding image of a moving object for a reference image from an image sequence which represents the motion as a sequence of states of motion. To this end, two motion signals, representing the development of the relevant motions, are examined for similarities. Using the similarity function thus obtained, that image in the image sequence can be determined which represents at least approximately the state of motion of the object which is represented in the reference image. Furthermore, the invention relates to a system which is suitable for carrying out the method as well as to a computer program and a computer program product enabling a data processing unit to carry out the method.



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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

INSPEC, EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BEIER J ET AL: "Advanced subtraction angiography: mask selection and image registration" COMPUTERS IN CARDIOLOGY 1994 BETHESDA, MD, USA 25-28 SEPT. 1994, LOS ALAMITOS, CA, USA, IEEE COMPUT. SOC, US, 25 September 1994 (1994-09-25), pages 105-108, XP010147930 ISBN: 0-8186-6570-X	1, 3-10
Y	abstract sections 3, 5 --- -/--	2

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 729 379 A (OHE MITSUO) 8 March 1988 (1988-03-08) cited in the application abstract column 3, line 31 -column 5, line 59 figures 3-5 ---	1,3-10
Y	VULLINGS H J L M ET AL: "Automated ECG segmentation with dynamic time warping" ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY, 1998. PROCEEDINGS OF THE 20TH ANNUAL INTERNATIONAL CONFERENCE OF THE IEEE HONG KONG, CHINA 29 OCT.-1 NOV. 1998, PISCATAWAY, NJ, USA, IEEE, US, 29 October 1998 (1998-10-29), pages 163-166, XP010320109 ISBN: 0-7803-5164-9 p.164, section II, paragraph B, lines 7-12 figure 4 -----	2

INTERNATIONAL SEARCH REPORT

Information on patent family members

International:

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date
US 4729379	A	08-03-1988	JP	1926732 C	25-04-1995
			JP	6057208 B	03-08-1994
			JP	62155835 A	10-07-1987
			DE	3644265 A1	02-07-1987